Week in Review: 12/2/02 – 12/8/02

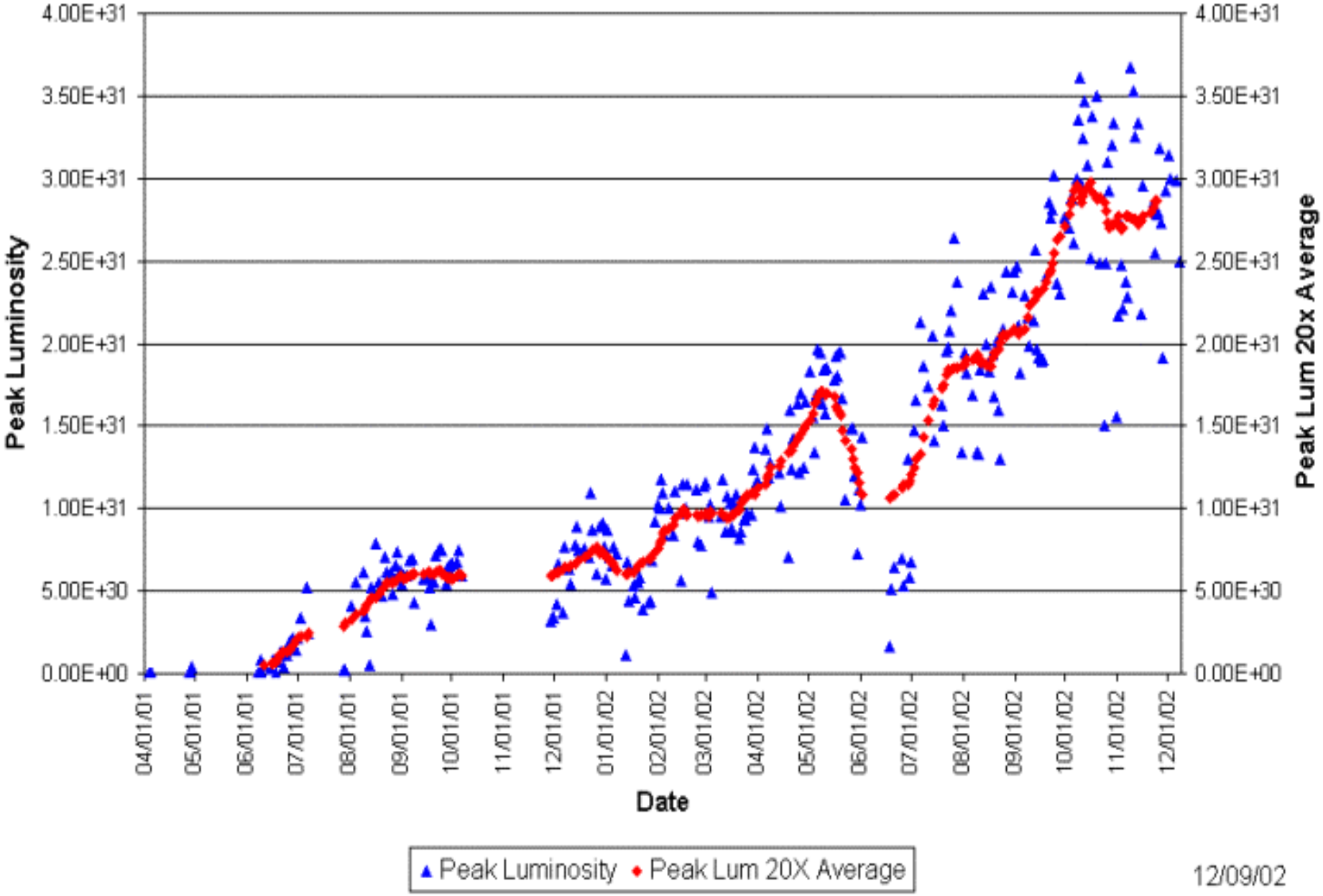
Ron Moore – FNAL

- Store Summary
- Studies Summary
- This week's schedule

Store Summary

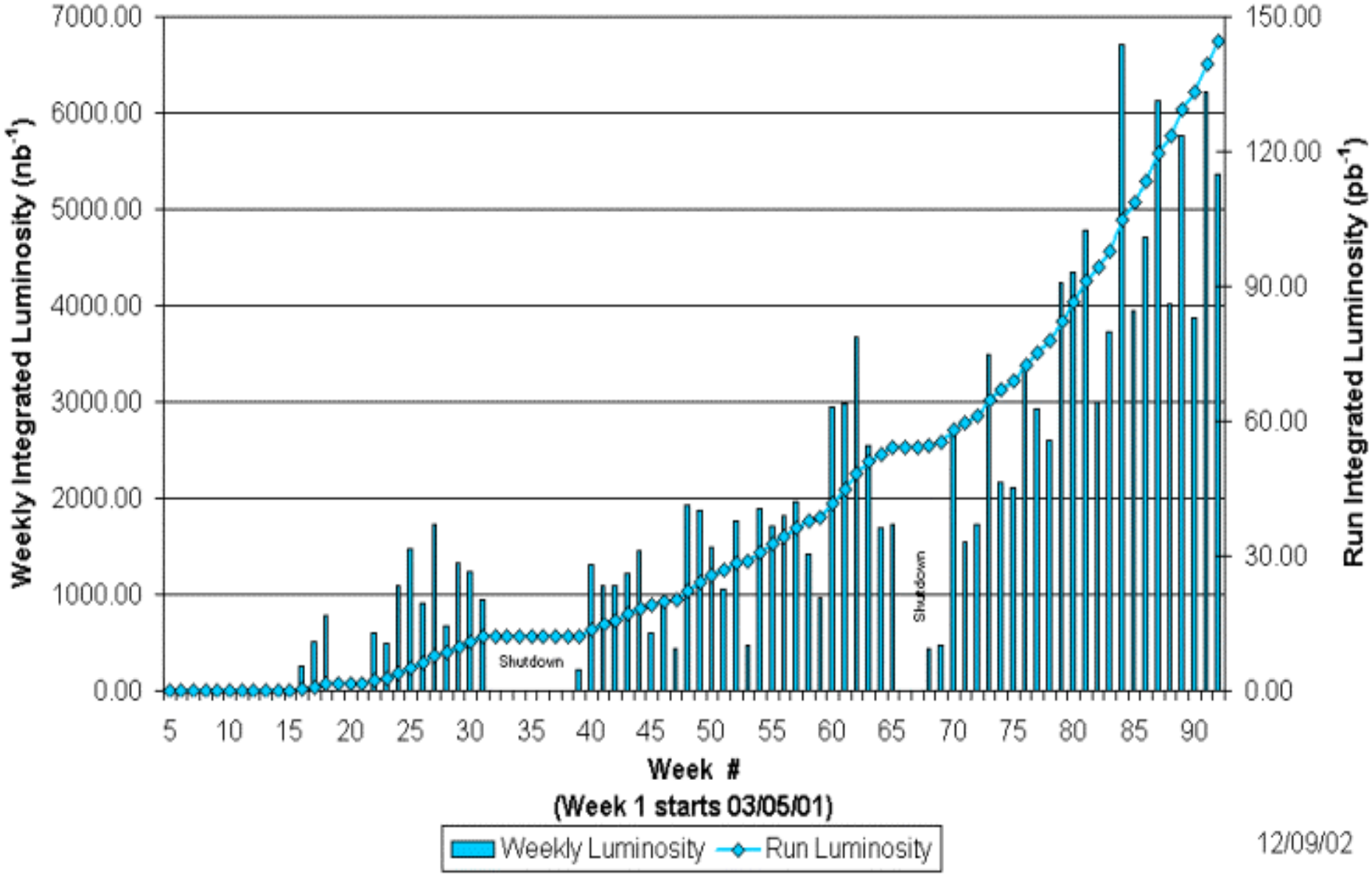
Store	Initial Lumi (E30 cm^{-2} $s^{-1)}$	Deliv'd Lumi (nb^{-1})	Termination	Comments
2019	29.8	1317	quench	Quench in end-of-store studies (pbar removal)
2043	25.5	1143	Intentional	Tev transverse dampers **off**
2045	29.8	1444	Intentional	Tev dampers **off**
2047	23.5	938	Intentional	Tev dampers **off**; pbar RF problem affects coalescing in MI
2049	24.8	888	Intentional	Tev dampers **off**; pbar RF problem affects coalescing in MI

Collider Run IIA Peak Luminosity



12/09/02

Collider Run IIA Integrated Luminosity



12/09/02

Maintenance/Repairs

- Linac tank 5 developed leak on valve
  - Wiped out most of Tuesday studies
- Replaced PA on LRF5 (only had 2800 hours)
- Did Linac, Booster, Pbar safety system tests
- Upgraded VFCs at A3 and A4
- Tev Flying Wire tests
- Moved a tiltmeter in Tev
- Measured for cables for new Schottky in Tev

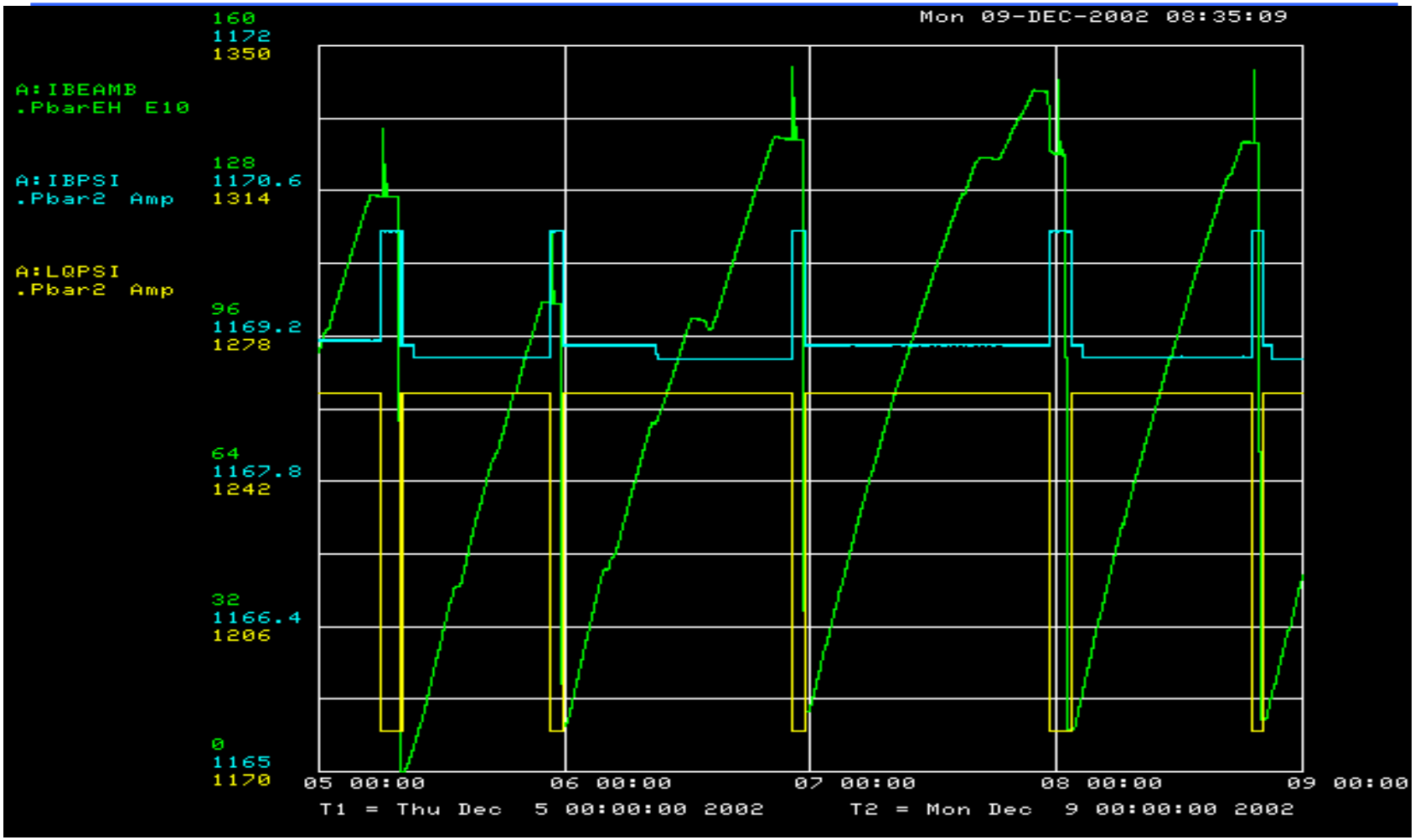
Tev Study Highlights

- Study “snapback” effect on tunes, chromaticity early in ramp as function of length of time at 150 GeV
  - Looks like we compensate pretty well
  - Want to investigate effect on coupling, too
- Verify operation of transverse dampers
  - Saw noise in dampers spectra – could cause beam growth?
  - Turn off dampers and wait for studies
  - Coupling may be causing dampers to work against one another
- Measure head-on beam-beam tune shifts
  - Measure tunes of individual p, pbar bunches in/out of collision
  - Horizontal shift agrees with expectations ~0.006
  - Vertical shift smaller than expected?

Pbar Maintenance/Studies

- Open up AP-1 line to look for obstruction
  - Removed dangling SEM grid foil, but losses and emittance growth persist in that area
- Installed new directional couplers in core cooling
  - Provide more gain to stacktail compensation
  - Could allow higher stacking rates for large stacks
  - Waiting to phase-in this week
- Checked 8 GeV line optics
- Verify DRF3 operations with new LLRF
- Measured Debuncher momentum aperture = 4.8%
- Debuncher admittance smaller, orbit deviation

Automated Return-to-Stacking Ramp



Have saved > 40 mA pbars since Friday!

Other Studies

- Recycler
  - continued aperture scans
  - Occasional no MI ramps
- Main Injector
  - 27 GeV coalescing/2.5 MHz acceleration
  - Slip-stacking (see evidence of beam-loading)

Weekly Schedule

Update 12/9/02 3:27 PM	MONDAY 12/9/02	TUESDAY 12/10/02	WEDNESDAY 12/11/02	THURSDAY 12/12/02	FRIDAY 12/13/02	SATURDAY 12/14/02	SUNDAY 12/15/02
Owls 0000 to 0800	Stack and store	**Tev** -0600 eos studies vacuum studies (CDF luminosity det neede on **Pbar** - stacking ap2 deb yield vs collimator	**Tev** 0000-0400 A1 studies -0400-0800 Pbar life time w/Oct. **Pbar** -stacking	**Shot** -	←	**Stack and Store**	→
DAYS 0800 to 1600	Shot 1030 kill store access to replae pump at A3 Shot set up r	**NTF – PT** **Tev** -emmittance up the ramp **Pbar** -reverse protons Ap2 orbits	**NTF – PT** **Tev** -octapole to suppress instability **Pbar** -stacking staktail compensation -Debuncher notch filter measuremets	←	**NTF - PT**	**Stack and Store**	→
EVES 1600 to 2400	**Tev Store** **Pbar** -stacking mode ap1 and ap2	**Tev** -Emmitance up the ramp **Pbar** - reverse protons	**TEV** -4 hrs damper s -4 hrs prepare for HEP **Pbar** -stack	←	←	**Stack and Store**	→

Schedule can be found at http://www-bd.fnal.gov/operations/schedules.html

Summary

- Best delivered luminosity with studies: > 5 pb^{-1}
- Suffering from emittance blow-up on Tev ramp
- Saving pbars while returning to stacking lattice
- 5 shifts of dedicated studies this week
- Likely shutdown on Tuesday 17 December